



DEPARTMENT OF
ECOLOGY
State of Washington

**Underground Storage Tank
Impressed Current Cathodic Protection
Evaluation Checklist**

| I. UST Facility | | II. UST Owner | |
|---|--|--|--|
| Facility Compliance Tag #: | | Name: | |
| UBI: 391-001-455 | | Address: | |
| | | City: | State: ZIP: |
| Facility Name: SMITTY'S | | Phone: | |
| Address: 102 E. TOPPENISH | | III. CP Tester | |
| City: TOPPENISH | | Tester's Name: ZACH SATHER | |
| County: YAKIMA | | Company Name: PACIFIC ENVIRONMENTAL SERVICES CO. | |
| State: WA | | Address: PO BOX 2049 | |
| ZIP: 98948 | | City: PORT TOWNSEND | State: WA ZIP: 98368 |
| Phone: | | Phone: (360) 385-4221 | |
| | | Certification Type: ICC | |
| | | Certification Number: 1079309-114 | Exp: 10-11 |
| IV. Cathodic Protection Tester's Evaluation | | | |
| <input checked="" type="checkbox"/> Pass | I certify that the criteria used to evaluate whether cathodic protection is adequate, as required by the Washington State Underground Storage Tank Regulations, were in accordance with a code of practice developed by a nationally recognized association (e.g. NACE). | | |
| <input type="checkbox"/> Fail | | | |
| CP Tester's Signature: | | Date CP Survey Performed: 2/12/08 | |
| V. Retrofit/Repair Design | | | |
| All retrofitting or repairs to CP systems shall be designed by a Corrosion Expert. I certify that I am a Corrosion Expert qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. I have attached copies of the retrofit/repair design and of the Underground Storage Tank Retrofit and Repair Checklist. | | | |
| Corrosion Expert's Name: | | National Recognized Organization: | |
| Company Name: | | Certification Number: | |
| Corrosion Expert's Signature: | | Date: | |
| VI. Criteria Applicable to Evaluation | | | |
| Continuity Test | <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL | USTs must show continuity using an approved testing method | |
| Neg. 850 Instant Off | X <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | Tanks | A negative polarized potential of at least 850 mV relative to a saturated copper-copper sulfate reference electrode (Instant Off Potential). |
| | X <input type="checkbox"/> Pass <input type="checkbox"/> Fail | Piping | |
| 100 mV Pol. | X <input type="checkbox"/> Pass <input type="checkbox"/> Fail | Tanks | A minimum of 100 mV of cathodic polarization between the structure surface and a stable reference electrode contacting the electrolyte |
| | X <input type="checkbox"/> Pass <input type="checkbox"/> Fail | Piping | |
| VII. Action Required as a Result of this Evaluation | | | |
| <input checked="" type="checkbox"/> NONE | Cathodic Protection is adequate. No further action is necessary at this time | | |
| <input type="checkbox"/> RETEST | Cathodic Protection may not be adequate. Retest is necessary. | | |
| <input type="checkbox"/> RETROFIT/REPAIR and RETEST | Cathodic Protection is not adequate. Retrofitting or Repairing is necessary. | | |
| Remarks (Include type of gear; Ex: Multi-meter): MUTI METER PORTABLE CUCUSO4 | | | |

| VIII. Impressed Current Rectifier Data | | | |
|--|-----------------------------------|-------------------------|--|
| Rectifier Manufacturer | GOODALL | Rectifier Model Number | |
| Rated DC Output | <u>72</u> Volts <u>12</u> Amps | Rectifier Serial Number | |

Rectifier "As Found" Data

| | | | |
|--------------------------|-------------------------|---|-------------------|
| (*) AC Input Voltage | _____ Volts | DC Voltage on Panel Meter | <u>69.3</u> Volts |
| (*) AC Step-Down Voltage | _____ Volts | DC Voltage on Rectifier Output Terminal | <u>70.7</u> Volts |
| Tap Settings | C-_____ F-_____ | DC Amps on Panel Meter | <u>1.5</u> Amps |
| (*) Cycles | Secondary Taps _____ Hz | (*) Shunt Rating | <u>50MV-10A</u> |
| | DC Output _____ Hz | (*) Shunt Measurement | <u>7.5</u> mV |
| | | DC Amps from Shunt Reading | <u>1.5</u> Amps |

Rectifier "As Left" Data

| | | | |
|--------------------------|-------------------------|---|-------------|
| (*) AC Input Voltage | _____ Volts | DC Voltage on Panel Meter | _____ Volts |
| (*) AC Step-Down Voltage | _____ Volts | DC Voltage on Rectifier Output Terminal | _____ Volts |
| Tap Settings | C-_____ F-_____ | DC Amps on Panel Meter | _____ Amps |
| (*) Cycles | Secondary Taps _____ Hz | (*) Shunt Rating | _____ |
| | DC Output _____ Hz | (*) Shunt Measurement | _____ mV |
| | | DC Amps from Shunt Reading | _____ Amps |

IX. Individual Anode Data

Complete only if Anode Measurements can be taken independently

"As Found"

| Anode # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------|---|---|---|---|---|---|---|---|---|----|
| Volts | | | | | | | | | | |
| Amps | | | | | | | | | | |

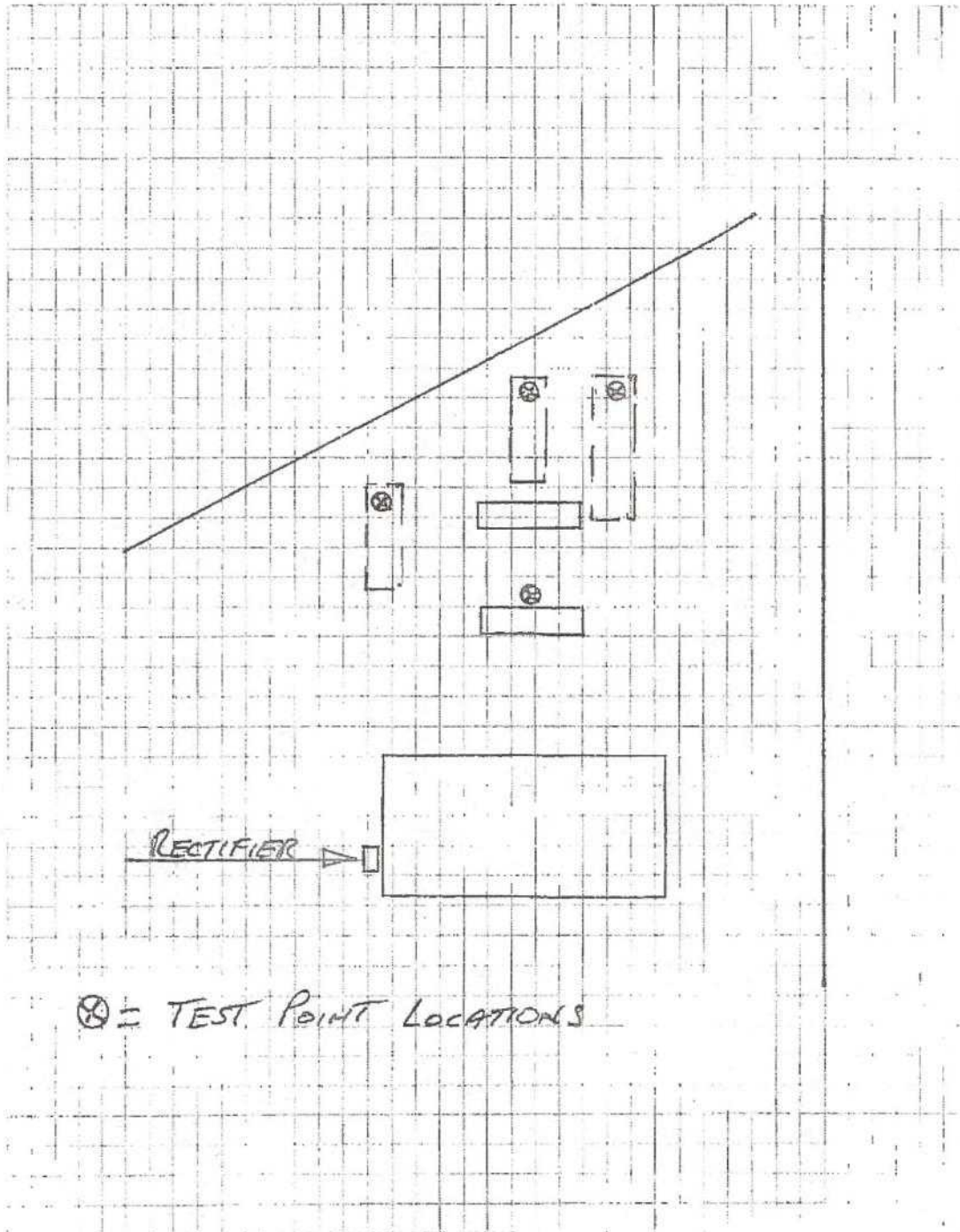
"As Left"

| Anode # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------|---|---|---|---|---|---|---|---|---|----|
| Volts | | | | | | | | | | |
| Amps | | | | | | | | | | |

X. Remarks (Describe any modifications that were made to the CP System)

Remarks/Other:

XIII. UST Site Plan. Diagram the UST System, including tanks, piping, and dispenser locations, approximate scale, and any other notable structures/physical features. Indicate north with arrow. Include the cathodic protection test locations used during this testing. The test points must be easily identifiable, so that testing can be reproduced and your results verified.



XIV. Washington State Department of Ecology 60-Day Record of Rectifier Operation

| UST Owner | | | UST Facility | | |
|-----------|--------|------|---------------------------|--------|------|
| Name: | | | Name: SMITTY'S | | |
| Address: | | | Address: 102 E. TOPPENISH | | |
| City: | State: | ZIP: | City: | State: | ZIP: |

| | | | |
|------------------------|-----------------------------------|-------------------------|--|
| Rectifier Manufacturer | GOODALL | Rectifier Model Number | |
| Rated DC Output | <u>72</u> Volts <u>12</u> Amps | Rectifier Serial Number | |

What is the "as designed" or most recently recommended rectifier range?

| | | | |
|--------|-----------------|-------|------------------|
| VOLTS: | <u>65 TO 75</u> | AMPS: | <u>.5 TO 2.0</u> |
|--------|-----------------|-------|------------------|

!!If Volt/Amp readings recorded below are out of recommended ranges, contact your service provider.!!

60 Day Log of Rectifier Operation

[illegible]

- IX. Individual Anode Data.** Complete only if Anode Measurements can be taken independently.
- X. Remarks.** Describe any modifications that were made to the CP System.
- XI. Impressed Current Cathodic Protection System Continuity Survey.** Necessary to show Impressed Current System is protecting structures that are intended to be protected.
- Compare various structures within the UST System (Structure A and B) using a "Fixed Cell" Technique or "Point to Point" Technique depending on the standard used. NACE recommends "Fixed Cell", STI recommends either "Fixed Cell" or "Point to Point".
 - If the Voltage Difference (between Structure A and B) is less than 10 mV, Structures are likely continuous.

Example:

| Structure "A" | Structure "B" | Point "A" to Point "B" or Fixed Cell Location >30' | Structure "A" Fixed Voltage >30' | Structure "B" Fixed Voltage >30' | Point to Point or Fixed Voltage Difference | Pass or Fail? | Method and Standard Used (e.g. RP-0285, R051) |
|---------------|----------------|--|----------------------------------|----------------------------------|--|---|---|
| Tank Bottom | Vapor Recovery | NE Corner (30') | -876 mV | -843 mV | 33 mV | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail | "Fixed" R051 |

- XII. Impressed Current Cathodic Protection System Survey.** Readings of the structures' potentials.
- Structure: Description of Structure (i.e. Tank #1).
 - Contact Point: Description of Contact point (i.e. Tank Bottom).
 - Half Cell Location: Location of Placement of Half Cell.
 - Local Voltage (On): Voltage measured as current is impressed on system.
 - Local Voltage (Instant Off): Voltage measured during interruption cycle.
 - Local Voltage (Depolarized): Voltage measured after structure has depolarized
 - Voltage Change: Instant Off subtracted from the Depolarized Potential (100mV Polarization Criteria).
 - Pass or Fail: Documentation of whether or not system passes.
 - Method and Standard Used: Use one of the criteria and document standard applied:
 - 850 "Instant Off"
 - 100 mV Polarization

Example:

| Structure | Contact Point | Half Cell Location | Local Voltage (ON) | Local Voltage (Instant Off) | Local Voltage (Depolarized) | Voltage Change | Pass or Fail? | Method and Standard Used |
|-----------|---------------|---------------------------------|--------------------|-----------------------------|-----------------------------|----------------|---|--------------------------|
| UST #1 | Tank bottom | Crack in NE corner of tank nest | 1020mV | -920 mV | | | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | -850 I/O RP-0285 |
| UST #2 | Tank bottom | Crack in NE corner of tank nest | -948 mV | -800 mV | -660 mV | 120 mV | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | 100 mV Pol. RP-0285 |

- XIII. UST Site Plan.** Diagram the UST system.

- XIV. Ecology 60-Day Record of Rectifier Operation.**

- Fill out UST owner and UST Facility information.
- Fill out Rectifier Manufacturer, Model and Serial number, and Rated DC output. Provide most recently recommended rectifier range in Volts and Amps.
- At Least Every 60 Days Inspect Rectifier Operation:** Fill out Rectifier Log with date of inspection, whether Rectifier is turned on at time of inspection, Tap Settings, Volts, Amps, Hour Meter reading (if available), and any other relevant comments. Inspector initials log.

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